UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 02526

CSAH NO. 7

OVER THE

RUM RIVER

DISTRICT 5 - ANOKA COUNTY

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 3512 (CEI 105)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. 02526, Piers 1 and 2, were found to generally be in good condition with no defects of structural significance. A light to moderate accumulation of timber debris was observed at Piers 1 and 2. Since the previous inspection, localized scour has exposed a small portion of the footings at each of Piers 1 and 2.

INSPECTION FINDINGS:

(A) Overall, the concrete piers were in good and sound condition with no defects of structural significance; however, light scaling was observed at Pier 2 from the waterline to 3 feet below the waterline with a maximum penetration of 1/8 inch.

(B) A moderate accumulation of 6- to 8-inch-diameter timber debris was located at the upstream end, and a 12-inch-diameter log was observed on the channel bottom along the shaft of Pier 2. An 8-inch-foot-diameter piece of timber debris was also observed at the upstream end of Pier 1.

(C) A 3-foot-radius, 1-foot-deep scour depression exposed the top of footing at the upstream end of Pier 1. An 11-foot-long by 3-foot-wide portion of the footing was exposed along Pier 2 with 1foot of the vertical face exposed.

RECOMMENDATIONS:

(A) Monitor footing exposure during future inspections.

(B) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Daniel G. Stromberg

Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.

Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 02526

Feature Crossed: The Rum River

Feature Carried: CSAH No. 7

Location: District 5 - Anoka County

Bridge Description: The bridge superstructure consists of four spans of multiple prestressed concrete girders supporting a reinforced concrete deck. The superstructure is supported by two reinforced concrete abutments and three reinforced concrete piers. The abutments are founded on concrete cast-in-place piles, while the piers are supported by rectangular concrete footings which are founded on timber piles. The piers are numbered 1 through 3 starting from the south end of the bridge.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker, P.E.

Dive Team: Michelle D. Koerbel, Clayton G. Brookins

Date: September 24, 2002

Weather Conditions: Sunny, "50E F

Underwater Visibility: "1.5 Feet

Waterway Velocity: "2 f.p.s.

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1, 2 and 3.

General Shape: The piers each consist of a rectangular shaft supporting a hammerhead pier cap, both with rounded ends. The pier shaft is supported by a rectangular concrete footing founded on timber piles.

Maximum Water Depth at Substructure Inspected: Approximately 10.0 feet.

4. WATERLINE DATUM

Water Level Reference: The top of Pier 1 on the downstream end.

Water Surface: The waterline was approximately 12.2 feet below reference. Waterline Elevation = 850.0.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 7

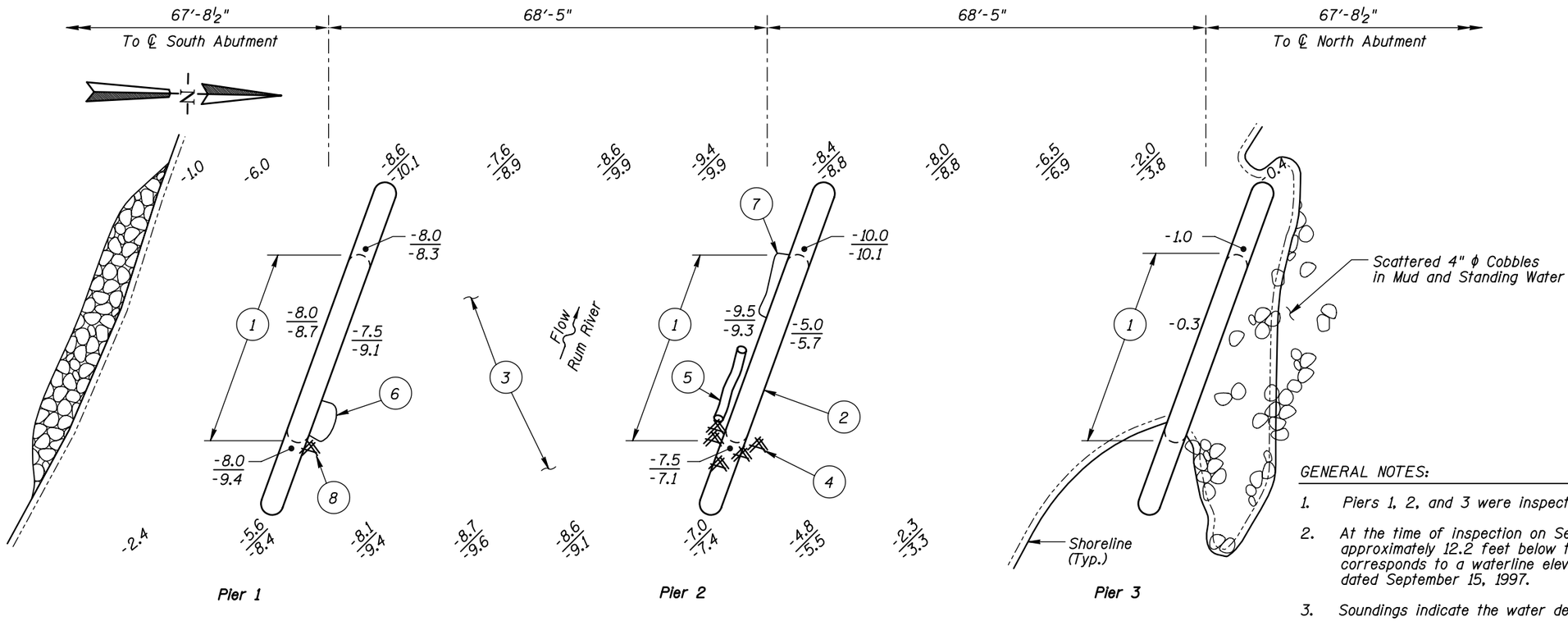
Item 61: Channel and Channel Protection: Code 7

Item 92B: Underwater Inspection: Code B/09/02

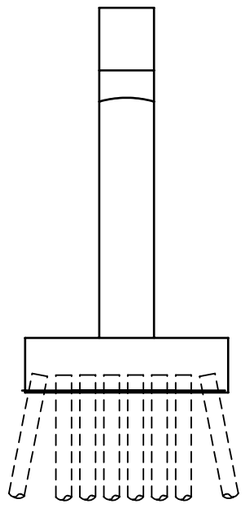
Item 113: Scour Critical Bridges: Code I/91

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

_____Yes __X__ No



SOUNDING PLAN



TYPICAL END VIEW OF PIERS

INSPECTION NOTES:

1. Overall, the concrete piers were in good, sound condition with no defects of structural significance.
2. Light scaling was observed from the waterline to 3 feet below the waterline with a maximum penetration of 1/8 inch.
3. The channel bottom consisted of firm sand with 2 to 3 inches of probe rod penetration and 12-inch-diameter riprap located at the upstream noses of Piers 1 and 2 and along the south face of Pier 1.
4. A moderate accumulation of 6- to 8-inch-diameter timber debris was located at the upstream end of Pier 2.
5. A 12-inch-diameter log was observed on the channel bottom along the pier shaft.
6. A 3-foot-radius, 1-foot-deep scour pocket exposed the top of footing at Pier 1.
7. An 11-foot-long by 3-foot-wide portion of the footing was exposed along Pier 2 with 1 foot of the vertical face exposed.
8. An 8-inch-diameter piece of timber debris was observed at the upstream end of Pier 1.

GENERAL NOTES:

1. Piers 1, 2, and 3 were inspected underwater.
2. At the time of inspection on September 24, 2002, the waterline was located approximately 12.2 feet below the top of Pier 1 at the downstream end. This corresponds to a waterline elevation of 850.0 based on the previous report dated September 15, 1997.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units as well as around the pier structures.

Legend

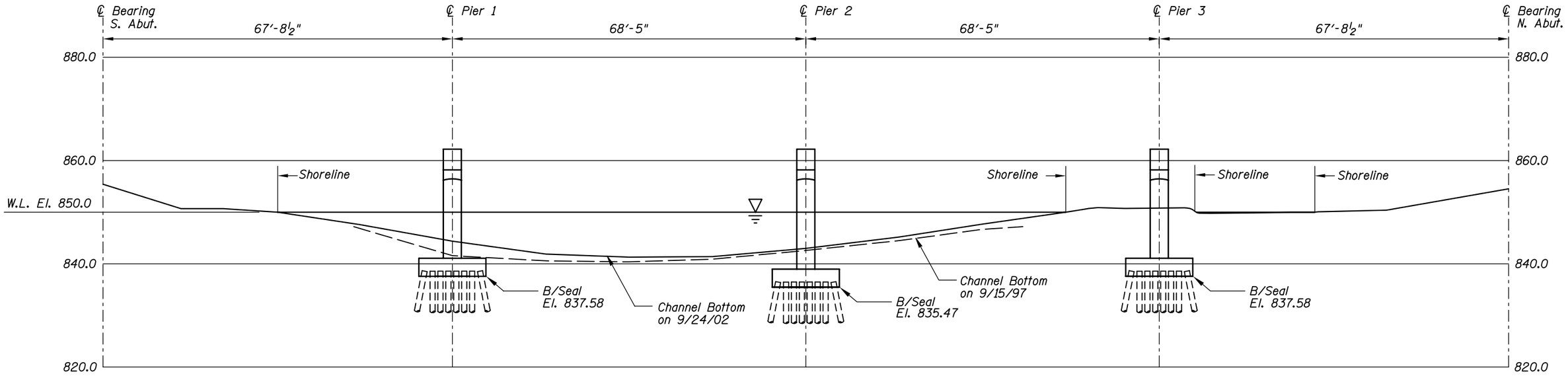
-2.0	Sounding Depth from Waterline (9/24/02)
-3.8	Sounding Depth from Waterline (9/15/97)
	Timber Debris
	Riprap

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

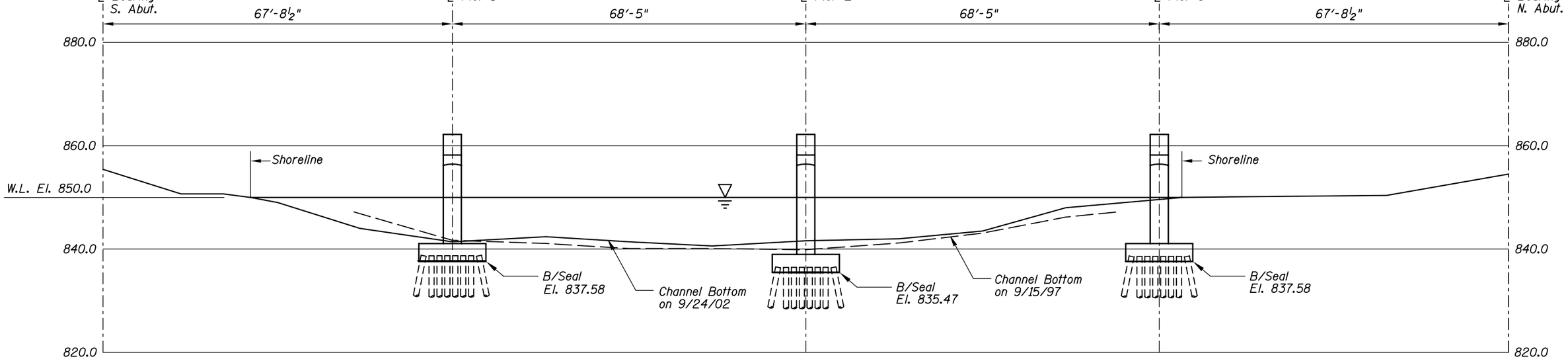
STRUCTURE NO. 02526
OVER THE RUM RIVER
DISTRICT 5, ANOKA COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: SEPT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 35120105		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

MINNESOTA
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UNDERWATER BRIDGE INSPECTION

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UPSTREAM AND DOWNSTREAM FASCIA PROFILES

Drawn By: PRH	**COLLINS ENGINEERS, INC.**	Date: SEPT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: 1"=20'
Code: 35120105		Figure No.: 2

Photograph 1. Overall View of Bridge, Looking East.

Photograph 2. View of Pier 1, Looking Northeast.

Photograph 3. View of Pier 2, Looking Northeast.


Photograph 4. View of Pier 3, Looking Southwest.

Photograph 5. Overall View of Structure, Looking Southwest.

Photograph 6. View of South Abutment, Looking Southeast.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: September 24, 2002

ON-SITE TEAM LEADER: Shirley M. Walker, P.E.

BRIDGE NO: 02526 WEATHER: Sunny, "50E F

WATERWAY CROSSED: The Rum River

DIVING OPERATION: X SCUBA SURFACE SUPPLIED AIR
OTHER

PERSONNEL: Michelle D. Koerbel, Clayton G. Brookins

EQUIPMENT: Scuba, Probe Rod, Lead Line, Sounding Pole, U/W Light, Scraper, Camera

TIME IN WATER: 11:30 a.m.

TIME OUT OF WATER: 12:00 p.m.

WATERWAY DATA: VELOCITY "2 f.p.s.
VISIBILITY "1.5 Feet
DEPTH 10.0 Feet maximum at Pier 2

ELEMENTS INSPECTED: Piers 1, 2, and 3

REMARKS: Overall, the concrete piers were in good condition with no defects of structural significance, however, light scaling was observed from the waterline to 3 feet below the waterline around Pier 2 with a maximum penetration of 1/8 inch. A moderate accumulation of 6- to 8-inch diameter timber debris was located at the upstream end of Pier 2, and a 12-inch-diameter log was observed on the channel bottom along the shaft of Pier 2. A 3-foot-radius, 1-foot-deep scour depression exposed the top of footing at upstream end of Pier 1, and an 11-foot-long by 3-foot-wide portion of the footing was exposed along Pier 2 with 1foot of the vertical face exposed.

FURTHER ACTION NEEDED: _____ YES ___X___ NO

Monitor the footing exposure during future inspections.

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 02526
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The Rum River

INSPECTION DATE September 24, 2002

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.		MAXIMUM DEPTH OF WATER	PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
	UNIT DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 1	8.5’	N	7	7	9	N	7	7	N	N	7	7	7	N	N	N	N	N
	Pier 2	10.0’	N	7	7	9	N	7	7	N	N	6	6	7	N	N	N	N	N
	Pier 3	1.0’	N	7	N	9	N	7	8	N	N	N	8	7	N	N	N	N	N

*UNDERWATER PORTION ONLY

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NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.